WEST Search History

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DATE: Monday, March 22, 2004

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☐	L6	l3[ti,ab]	2
☐	L5	l3 and L4	1
☐	L4	(707/3 or 707/4).ccls.	3104
☐	L3	l1 same (bluetooth or (blue tooth) or wap or ((wireless or (wire less)) adj (application or access$) adj protocol) or (global system mobile) or ((wireless or (wire less)) adj markup adj language))	43
☐	L2	L1[ti,ab]	402
☐	L1	(wireless$ or (wire less$) or mobil$ or palm$ or bluetooth$ or (blue tooth$) or portab$ or laptop$ or (lap top) or handheld$ or (hand held$) or infrared$) near12 (search$ or quer$)	3793

END OF SEARCH HISTORY

US006529903B2

US 6,529,903 B2

(12) **United States Patent**
Smith et al.

(10) Patent No.: **US 6,529,903 B2**
(45) Date of Patent: **Mar. 4, 2003**

(54) **METHODS AND APPARATUS FOR USING A MODIFIED INDEX TO PROVIDE SEARCH RESULTS IN RESPONSE TO AN AMBIGUOUS SEARCH QUERY**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 214 days.

(21) Appl. No.: **09/748,833**

(22) Filed: **Dec. 26, 2000**

(65) **Prior Publication Data**

US 2002/0042791 A1 Apr. 11, 2002

Related U.S. Application Data

(60) Provisional application No. 60/216,530, filed on Jul. 6, 2000.

(51) Int. Cl.^{7} **G06F 17/30**
(52) U.S. Cl. **707/7; 707/5; 707/3**
(58) Field of Search 707/7, 5, 3, 100, 707/101

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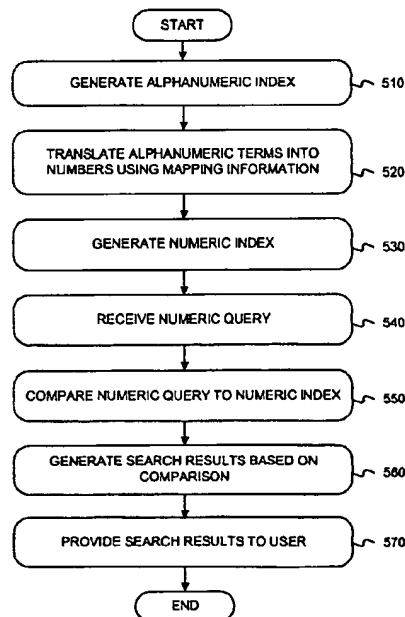
Primary Examiner—Frantz Coby
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(57) **ABSTRACT**

A system allows a user to submit an ambiguous search query and to receive potentially disambiguated search results. In one implementation, a search engine's conventional alphanumeric index is translated into a second index that is ambiguated in the same manner as which the user's input is ambiguated. The user's ambiguous search query is compared to this ambiguated index, and the corresponding documents are provided to the user as search results.

21 Claims, 8 Drawing Sheets

START

GENERATE ALPHANUMERIC INDEX — 510

TRANSLATE ALPHANUMERIC TERMS INTO NUMBERS USING MAPPING INFORMATION — 520

GENERATE NUMERIC INDEX — 530

RECEIVE NUMERIC QUERY — 540

COMPARE NUMERIC QUERY TO NUMERIC INDEX — 550

GENERATE SEARCH RESULTS BASED ON COMPARISON — 560

PROVIDE SEARCH RESULTS TO USER — 570

END

First Hit   Fwd Refs
End of Result Set

☐ Generate Collection   Print

L5: Entry 1 of 1   File: USPT   Mar 4, 2003

DOCUMENT-IDENTIFIER: US 6529903 B2
TITLE: Methods and apparatus for using a modified index to provide search results
in response to an ambiguous search query

Brief Summary Text (5):
Most search engines operate under the assumption that the end user is entering
search queries using something like a conventional keyboard, where the input of
alphanumeric strings is not difficult. As small devices become more common,
however, this assumption is not always valid. For example, users may query search
engines using a wireless telephone that supports the WAP (Wireless Application
Protocol) standard. Devices such as wireless telephones typically have a data input
interface wherein a particular action by the user (e.g., pressing a key) may
correspond to more than one alphanumeric character. A detailed description of WAP
architecture is available at http://www1.wapforum.org/tech/documents/SPEC-WAPArch-
19980439.pdf ("WAP 100 Wireless Application Protocol Architecture Specification").

Current US Cross Reference Classification (1):
707/3